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DATE: June 30, 1998**TO:** N. Nashed**COMPANY:** U.S. Patent and Trademark Office**FAX NO.:** 703-308-0294**TELEPHONE NO.:** _____**FROM:** Sheela Mohan-Peterson**OUR REF. NO.:** PF-0182-1 DIV**YOUR REF. NO.:** Serial No. 09/007,306Total number of pages including this cover sheet 9
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XP-002059834

Hs897286.Ernest8

Reference No. 1

P.D.17-02-1995

p.....=

(2)

!!NA_SEQUENCE 1.0

ID HS897286 standard; RNA; EST; 410 BP.

XX

AC N44897;

XX

NI g1186063

XX

DT 17-FEB-1996 (Rel. 46, Created)

DT 17-FEB-1996 (Rel. 46, Last updated, Version 1)

XX

DE yy21d05.r1 Homo sapiens cDNA clone 271881 5' similar to gb:M24470

DE GMP REDUCTASE (HUMAN);

XX

KW EST.

XX

OS Homo sapiens (human)

OC Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata; Vertebrata;

OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

XX

RN [1]

RP 1-410

RA Hillier L., Clark N., Dubuque T., Elliston K., Hawkins M., Holman M.,
RA Hultman M., Kucaba T., Le M., Lennon G., Marra M., Parsons J.,
RA Rifkin L., Rohlfing T., Soares M., Tan F., Trevaskis E., Waterston R.,
RA Williamson A., Wohldmann P., Wilson R.;

RT "The WashU-Merck EST Project";

RL Unpublished.

XX

CC Contact: Wilson RK WashU-Merck EST Project Washington University

CC School of Medicine 4444 Forest Park Parkway, Box 8501, St. Louis,

MO 63108 Tel: 314 286 1800 Fax: 314 286 1810 Email:

CC est@watson.wustl.edu High quality sequence stops: 281 Source: IMAGE

CC Consortium, LLNL This clone is available royalty-free through LLNL

CC ; contact the IMAGE Consortium (info@image.llnl.gov) for further
CC information. NCBI gi: 1186063

XX

FH Key Location/Qualifiers

FH

FT source 1. .410

FT /organism="Homo sapiens"

FT /note="human"

FT /clone="271881"

FT mRNA <1. .>410

XX

SQ Sequence 410 BP; 100 A; 93 C; 100 G; 115 T; 2 other;

Hs897286 Length: 410 March 20, 1998 15:25 Type: N Check: 2221 ...

1 ATTGACAACG ATGTGAAC TG GACTTCAAGG ATGTCCTTTT GAGGCNCAAA

51 CGCAGTACCC TTAAGTCTCG AAGTGAGGTG GATCTCACAA GATCCTTTTC

101 ATTTCGGAAC TCAAAGCAGA CATACTCTGG GGTTCCCATC ATTGCTGCCA

151 ATATGGATAAC TGTGGGCACC TTTGAGATGG CCAAGGTTCT CTGTAAGTTC
201 TCTCTCTTCA CTGATGTCCA TAAGCACTAT AGCCTCGTTC AGTGGCAAGA
251 GTTGCTGGC CAGAACCTG ATTGTCTTGA GCATCTGGCT GCCAGCTCAG
301 GCACAGGCTC TTCTGACTTT GAGCAGCTGG AACAGATCCT GGAAGCTATT
351 CCCCAGGTGG AAGTATATAT GCCTGGATGT GGCAAAATGG GNTAATCTGG
401 AAAACTTTTG

HS887266.Emest8

Reference No. 2

P.DOS-01-33

p.....= (2)

!!NA_SEQUENCE 1.0

ID HS887266 standard; RNA; EST; 501 BP.

XX

AC N28887;

XX NI g1147123

XX

DT 05-JAN-1996 (Rel. 46, Created)

DT 05-JAN-1996 (Rel. 46, Last updated, Version 1)

XX

DE yx63a11.r1 Homo sapiens cDNA clone 266396 5' similar to gb:M24470

DE GMP REDUCTASE (HUMAN);

XX

KW EST.

XX

OS Homo sapiens (human)

OC Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata; Vertebrata;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

XX

RN [1]

RP 1-501

RA Hillier L., Clark N., Dubuque T., Elliston K., Hawkins M., Holman M.,
RA Hultman M., Kucaba T., Le M., Lennon G., Marra M., Parsons J.,
RA Rifkin L., Rohlffing T., Soares M., Tan F., Trevaskis E., Waterston R.,
RA Williamson A., Wohldmann P., Wilson R.;
RT "The WashU-Merck EST Project";
RL Unpublished.

XX

CC Contact: Wilson RK WashU-Merck EST Project Washington University
CC School of Medicine 4444 Forest Park Parkway, Box 8501, St. Louis,
MO 63108 Tel: 314 286 1800 Fax: 314 286 1810 Email:
CC est@watson.wustl.edu High quality sequence stops: 372 Source: IMAGE
CC Consortium, LLNL This clone is available royalty-free through LLNL

CC ; contact the IMAGE Consortium (info@image.llnl.gov) for further
CC information. NCBI gi: 1147123

XX

FH Key Location/Qualifiers

FH

FT source 1..501
FT /organism="Homo sapiens"
FT /note="human"
FT /clone="266396"
FT mRNA <1..>501

XX

SQ Sequence 501 BP; 120 A; 116 C; 130 G; 134 T; 1 other;

HS887266 Length: 501 March 20, 1998 15:26 Type: N Check: 333 ..

1 TCCTTTCAT TTGGAACTC AAAGCAGACA TACTCTGGGG TTCCCATCAT

51 TGCTGCCAAT ATGGATACTG TGGGCACCTT TGAGATGGCC AAGGTTCTCT

101 GTAAGTTCTC TCTCTTCACT GATGTCCATA AGCACTATAG CCTCGTTCA

151 TGGCAAGAGT TTGCTGGCCA GAATCCTGAT TGTCTTGAGC ATCTGGCTGC
201 CAGCTCAGGC ACAGGGCTCTT CTGACTTTGA GCAGCTGGAA CAGATCCTGG
251 AAGCTATTCC CCAGGTGAAG TATATATGCC TGGATGTGGC AAATGGCTAC
301 TCTGAACACT TTGTTGAATT TGTAAAAGAT GTACGGAAGC GCTTCCCCCA
351 GCACACCATC ATGGCAGGGA ATGTGGTAAC AGGAGAGATG GTAGAAGAGC
401 TCATCCTTTC TGGGGCTGAC ATCATCAAAG TGGGAATTGG GCCAGGCTCT
451 GTGTGTACTA CTCGGAAGAA AACTGGAGTG GGGTATCCCA GCTCAGCGCN
501 T

AT-UUZUO9030

Hsa04431.Emest8

Reference No. 3

P.D.ZS-Off-13

P..... = (2)

! ! NA_SEQUENCE 1.0

ID HSA04431 standard; RNA; EST; 522 BP.

XX

AC AA004431;

XX

NI g1448545

XX

DT 25-JUL-1996 (Rel. 48, Created)

DT 12-MAY-1997 (Rel. 51, Last updated, Version 2)

XX

DE zh87a04.rl Soares fetal liver spleen 1NFLS S1 Homo sapiens cDNA

DE clone 428238 5' similar to gb:M24470 GMP REDUCTASE (HUMAN); .

XX

KW EST.

XX

OS Homo sapiens (human)

OC Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata; Vertebrata;

OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

XX

RN [1]

RP 1-522

RA Hillier L., Clark N., Dubuque T., Elliston K., Hawkins M., Holman M.,

RA Hultman M., Kucaba T., Le M., Lennon G., Marra M., Parsons J.,

RA Rifkin L., Rohlfing T., Soares M., Tan F., Trevaskis E., Waterston R.,

RA Williamson A., Wohldmann P., Wilson R.;

RT "The WashU-Merck EST Project";

RL Unpublished.

XX

CC Contact: Wilson RK WashU-Merck EST Project Washington University

CC School of Medicine 4444 Forest Park Parkway, Box 8501, St. Louis,

CC MO 63106 Tel: 314 286 1800 Fax: 314 286 1810 Email:

CC est@watson.wustl.edu This clone is available royalty-free through

CC LLNL ; contact the IMAGE Consortium (info@image.llnl.gov) for

CC further information. Insert Length: 1169 Std Error: 0.00 Seq

CC primer: mob.REGA+ET High quality sequence stop: 270.

XX

FH Key Location/Qualifiers

FH

FT source 1. .522

FT /organism="Homo sapiens"

FT /note="Organ: Liver and Spleen; Vector: pT7T3D (Pharmacia
FT with a modified polylinker; Site_1: Pac I; Site_2: Eco RI
FT This is a subtracted version of the original Soares fetal
FT liver spleen 1NFLS library. 1st strand cDNA was primed wi

FT a Pac I - oligo(dT) primer [5'

FT AACTGGAAAGAATTAAATTAAAGATCTTTTTTTTTTTTTTTTTTT 3'].

FT double-stranded cDNA was ligated to Eco RI adaptors
FT (Pharmacia), digested with Pac I and cloned into the Pac I
FT and Eco RI sites of the modified pT7T3 vector. Library was

FT through one round of normalization. Library constructed by
FT Bento Soares and M.Fatima Bonaldo."
FT /sex="male"

FT /clone="428238"
FT /clone_lib="Soares fetal liver spleen 1NFLS S1"
FT /dev_stage="20 week-post conception fetus"
FT /lab_host="DH10B (ampicillin resistant)"

FT mRNA <1. .>522

XX
SQ Sequence 522 BP; 126 A; 99 C; 153 G; 124 T; 20 other;

Hsa04431 Length: 522 March 20, 1998 15:27 Type: N Check: 296

1 TGGTAGAAGA GCTCATCCTT TCTGGGGCTG ACATCATCAA AGTGGGAATT
51 GGGCCAGGCT CTGTGTGTAC TACTCGNAAG ANAACTGGAG TGGGGTATCC
101 ACAGCTCANC GCAGTGATGG AGTGTGCAGA TGCTNCTCAT GGCTCAAAG
151 NCACNATCAT TTCAGATGGA GGTTGCAGCT GTCCTGGGA TGTGGCCAAG
201 GCTTTGGNG CAGGANCTGA CTTCGTGATG CTGGGTGGCA TGCTGGCTGG
251 GCACAGTGAG TCAGGGTGGTG AGCTCATCGA GANGGATGGC AATAAGTACA
301 AGCTTTCTA TGGAATNAGT TCTTAAATTG GCCATGAAGA ANGTATGCTG

351 GGGGCGTGGC TNAAGTACAG AGCCTCANAG GGAAAGACAN TGGAAGTTCC
401 TTTTAAAGGA GATGTTGGAA CATAACCATCC CGAGACNTCC TAGNAAGGAN
451 TCCGCTCTAC GTTTACCTAT TGTTGGTGAA NCAGCTAAGC TCAAGAGAGT
501 TTGNGCAGGN AGAACTACCT TC

XJ-UUZUCYQJ

Hs937352.Ernest8

Reference No. 4

P.U.J.-041580

p.....

(2)

!!NA_SEQUENCE 1.0

ID HS937352 standard; RNA; EST; 646 BP.

XX

AC W60937;

XX

NI g1367705

XX

DT 09-JUN-1996 (Rel. 48, Created)

DT 09-JUN-1996 (Rel. 48, Last updated, Version 1)

XX

DE zd27e06.rl Soares fetal heart NbHH19W Homo sapiens cDNA clone

DE 341890 5' similar to gb:M24470 GMP REDUCTASE (HUMAN);

XX

KW EST.

XX

OS Homo sapiens (human)

OC Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata; Vertebrata;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

XX

RN [1]

RP 1-646

RA Hillier L., Clark N., Dubuque T., Elliston K., Hawkins M., Holman M.,
RA Hultman M., Kucaba T., Le M., Lennon G., Marra M., Parsons J.,
RA Rifkin L., Rohlfing T., Soares M., Tan F., Trevaskis E., Waterston R.,
RA Williamson A., Wohldmann P., Wilson R.;

RT "The WashU-Merck EST Project";

RL Unpublished.

XX

CC Contact: Wilson RK WashU-Merck EST Project Washington University
School of Medicine 4444 Forest Park Parkway, Box 8501, St. Louis,
MO 63108 Tel: 314 286 1600 Fax: 314 286 1810 Email:

CC est@watson.wustl.edu This clone is available royalty-free through
CC LLNL ; contact the IMAGE Consortium (info@image.llnl.gov) for

CC further information. Seq primer: mob.REGA+ET High quality sequence
CC stop: 400.

XX

FH Key Location/Qualifiers

FH

FT source 1. .646

FT /organism="Homo sapiens"

FT /note="Organ: heart; Vector: pT7T3D (Pharmacia) with a
FT modified polylinker; Site_1: Not I; Site_2: Eco RI; 1st
FT strand cDNA was primed with a Not I - oligo(dT) primer [5'
FT TGTTACCAATCTGAAGTGGGAGCGGCCGCATTTTTTTTTTTTT 3'],
FT double-stranded cDNA was size selected, ligated to Eco RI
FT adapters (Pharmacia), digested with Not I and cloned into

FT the Not I and Eco RI sites of a modified pT7T3 vector
FT (Pharmacia). Library went through one round of
FT normalization to a Cot = 5. Library constructed by M.Fatim

FT Bonaldo. This library was constructed from the same fetus
FT as the fetal lung library, Soares fetal lung NbHL19W."
FT /sex="unknown"
FT /clone="341890"

FT /clone_lib="Soares fetal heart NbHH19W"
FT /dev_stage="19 weeks"
FT /lab_host="DH10B (ampicillin resistant)"
FT mRNA <1. .>646

XX

SQ Sequence 646 BP; 183 A; 150 C; 161 G; 148 T; 4 other;

Hs937352 Length: 646 March 20, 1998 15:28 Type: N Check: 3051 ..

1 CGAGCTCATC GAGAGGGATG GCAAGAAGTA CAAGCTCTTC TATGGAATGA
51 GTTCTGAAAT GGCCATGAAG AAGTATGCTG GGGGCGTGGC TGAGTACAGA
101 GCCTCAGAGG GAAAGACAGT GGAAGTTCCCT TTTAAAGGAG ATGTGGAACA
151 TACCATCCGA GACATCCTAG GAGGGATCCG CTCTACGTGT ACCTATGTGG
201 GAGCAGCTAA GCTCAAAGAG TTGAGCAGGA GAACTACCTT CATCCGAGTC
251 ACCCAGCAGG TGAATCCAAT CTTCACTGAG GCGTGCTAGA CCTGAGCAAG
301 TTCTACCCTC CCAAGGCACC AAGTACTCTA CCATGGGGCA TCCCAAGTTG
351 GGGTCCTCAC CCATCCCAGC TACTGCAGCT CTGTATTACT TTGTCATTT
401 CTGTTGTCTC ACTCCTGAGG GCTCCTGCAG TAACTCTGTA CTTCTCTATC
451 TGCACACACA AAATGCCAA NGCACTCACT GGGGANGAAG CAAGGAAGCA
501 AACAGTCTGA GAAAATGATG CAAGAAATCA AATGGGAATC TGGGGACCCA
551 CACAACATCC TGAAGATTAT TNAAAGGAAA GATGCTGATT GTACATAATC
601 CTTTACATGG CCTGGTCTAG AGAGGCAGGC NTTTAGATCA TGTTTT

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